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ABSTRACT

Ideally, communication is a circular process in which a message is transmitted by a source to a receiver who then responds either verbally or nonverbally to one or more of the following: the sender, the message, or the transmission. The source, on reception of the receiver's response, proceeds to adjust the message and/or the transmission to correspond to the receiver's response. The theoretical and experimental literature in the area of feedback, the receiver's response, is reviewed in this paper. An extensive bibliography accompanies the paper. (TO)

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REVIEW OF THE LITERATURE OF THE FEEDBACK CONCEPT

by Randal J. Givens

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REVIEW OF THE LITERATURE

Introduction

Communication has been referred to as a circular process. Keltner has referred to the communication situation as a "loop of communication."[1] This circular process refers to the situation in which a message is transmitted by a source to a receiver. Upon the reception of the message, the receiver responds to one or more of the following: the sender, the message, or the transmission, either verbally and/or nonverbally. This response is directed toward the source, who, upon reception of the receiver's response, proceeds to adjust his message and/or transmission to correspond to the audience's response. In this ideal circular or communication process, feedback, or the receiver's response, constitutes at least half of the situation. Although there are several limitations and assumptions involved, the area of feedback certainly provides a rich field for experimental investigations and their corresponding observations. These investigations should enable the source and the receiver to deal with the feedback situation specifically, and the communication process generally, in a more effective manner and with greater predictability.

1

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Review of the Theoretical Literature

The Importance of Feedback

In an attempt to approach this study in a more or less deductive fashion, this investigator felt it advisable to examine first the views of various communication theorists in respect to the importance of and the need for feedback.

In a general sense, Oliver stated that "all theory and practice, all the speaker-listener bonds, all of the speaker-listener behaviors in effective oral communication in a modern society rely on feedback, the reading of responses."[2] Oliver further observed that 'talk' is a lively process, and that, in order to increase one's abilities in oral communication, one must "increase his awareness of feedback functions in order to give more feedback and in order to adapt more to feedback. Each student of communicative speaking and listening has a responsibility to increase his response ability."[3] Cathcart, in his consideration of speeches, stated that "a speech is a process of adaptation or adjustment of adjusting ideas to men and men to ideas . . . [and] in the final analysis the success of a communication is dependent upon a response. It is dependent on the author's treatment of his audience, rather than on his treatment of his subject."[4] DeVito felt that the value of feedback is quite significant indeed, as he stated that "feedback, although often neglected by inept writers and speakers, is

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probably the one element which can most successfully control behavior . . . [it] is essential to all types of communication; without feedback, communication, as we know it, could not exist. Feedback is so vital to performance that it is seldom consciously recognized."[5] Berlo further noted that "an awareness and utilization of feedback increases the communication effectiveness of the individual. The ability to observe carefully the reaction others make to our messages is one of the characteristics of the person we designate as being good at 'human relations', or 'sensitive as a communicator'."[6] Or, as Abraham Lincoln said, "If we could first know where we are and whither we are tending, we could better judge what to do and how to do it."[7] Indeed, that is just what feedback is all about. Schiedel stated that "adjustment to feedback is highly essential to effective communication."[8] Or, as Leavitt and Mueller put it,

> When communication between A and B is the goal, feedback in the form of verbal or expressive language should make for greater effectiveness. . . . It is apparently taken for granted in industry, in the lecture hall, and in radio that it is both possible and efficient to transmit information from A to B without simultaneous feedback from B to A. On the other hand, the information theories of the cyberneticists and, to some extent, trial and error concepts in learning theory suggest that for A to hit successfully some target B requires that A be constantly informed of A's own progress. [Thus] when the human being A seeks to transmit information to another human being B, A's own sensory system is hardly an adequate source of information unless B takes some action which will help A to keep informed of A's own progress.[9]

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These preceding remarks concerning the value, importance, and need for feedback are only a few of the many comments which may be found in the literature relating to the significance of feedback for both the sender and the receiver.

Definitions of Feedback

Having viewed a relatively representative group of remarks and their assessment of the varying degrees of importance and value of feedback, the investigator sought to examine more specifically some of the actual definitions of feedback and the feedback concept. Since the initiation of the feedback concept, interest in this principle has spread to many varying professions, such as psychology, social-psychology, communication theory, and others. Just as the interest in feedback is increasing at an appreciable rate, so, too, the versatility of the application of feedback is increasing. As Keltner put it, "many definitions and concepts of feedback include all responses of the receiver to the message and message situation; . . . [others emphasize] the corrective aspects of the process, which constitute the heart of the feedback process."[10] Although the definitions of feedback are all approximately the same, the differences between them lie in the varying emphases. The definitions of feedback seem to centralize around three different emphases: (1) the receiver's response, (2) the

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sender's perception of the receiver's response, and (3) the sender's response to the receiver's response. The following sets of definitions should serve as examples of the types of emphases just mentioned. Although any given definition may include more than one of the above emphases, the definition will be included in one of the three categories because of its apparent stress on the given point or characteristic dealt with in that category.

The Receiver's Response

The first set of feedback definitions, as they relate to speaker-audience communication, tends to be somewhat more general in nature than the following two sets. For instance, Barnlund stated that "translated into general terms, it [the feedback principle] means simply that our actions should be evaluated in terms of their continuing usefulness in accomplishing our purposes."[11] Along the same lines, Berlo said that "the reaction of the receiver is a consequence of the response of the source. As a response consequence it serves as feedback to the source. . . . One consequence of a communication response is that it serves as feedback to both the source and the receiver. . . . Communication sources and receivers are mutually interdependent, for existence and for feedback. Each of them continually exerts influence over himself and others by the kinds of responses that he makes

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to the messages he produces and receives."[12] Miller defined feedback as "those overt responses of a listener that serve to shape and modify the succeeding communication behavior of a speaker."[13] Keltner was the one who said that "feedback names a special aspect of receiver reaction. It names the use which the source can make of this reaction in determining its own success."[14] Finally, Barnlund in 1968 purposed a very comprehensive view of feedback, as he described the feedback process as a "requirement of all self-governing, goal-seeking systems whether they are mechanical devices, living organisms, or social groups."[15]

The Sender's Perception of the Receiver's Response

The second set of definitions emphasizes the source's perception of the receiver's response. For example, Dance and Larson stated that "feedback overlaps with listening. When we speak of feedback we are generally referring to the assessment of the success or failure of our past communicative behavior and the consequent altering of our future communicative behavior. Obviously, the garnering of feedback is related to listening but is not completely identical with listening. . . . The accurate perception and assessment of feedback also depends on sensitivity and capability in role taking."[16] Litvin stated, along these same lines, that "feedback in interpersonal communication is a process by

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which the sender perceives how his message is being decoded and received."[17] Similarly, Keltner stated that feedback essentially means "the perception of the behavior of the receiver by the transmitter in relation to the message that he, the sender, is attempting to send."[18] Finally, Barnlund also described feedback as an interpersonal process when he stated that "a social engagement is a sort of system of systems; there is a flow of information between as well as within the participating individuals. Each person must monitor his own acts to produce the words and gestures he intends, and must monitor the reactions of others to those words and gestures to see if his message prompted the reaction he sought."[19]

The Sender's Response to the Receiver's Response

The third set of definitions contains those definitions which emphasize the source's reaction to the receiver's reaction. Ruech and Kees, for example, have stated that feedback "refers to the process of correction through incorporation of information about effects received. When a person perceives the results produced by his own actions, the information so derived will influence subsequent action. Feedback of information thus becomes a steering device upon which learning and the correction of ideas and misunderstandings are based."[20] Similarly, Silverman, a psychologist,

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said that feedback is "knowledge of results that informs the learner about his progress, [and] improves learning because it enables him to adjust his performance."[21] Scheidel stated that "the concept . . . may be defined as the reception of stimuli that allow for correction and modification of behavior. Put another way, feedback from a listener provides the means whereby the listener can influence the behavior of the speaker."[22] Fotheringham said that "feedback . . . in persuasion [is] receivers' responses to source messages that are perceived by the source. In this sense feedback serves to provide information on effects sought and contributes inputs which affect further source outputs."[23] Finally, Wiener defined feedback as "the property of being able to adjust future conduct by past performance."[24]

Types of Feedback

After briefly surveying the importance of and some of the definitions of feedback, it seems evident that there are obvious areas of varying interpretations within the area of feedback. Although concepts of feedback may vary, it is generally conceded that in the speaker-audience communication situation there are four major types of feedback. Both psychologists and communication theorists recognize these types to be: internal, external, positive, and negative. Any of these four types may also be, to varying degrees,

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either from concurrent to delayed, and/or from free to zero feedback.

Perhaps the simplest of these categories is the concurrent to delayed feedback category. Mortensen put it very clearly when he said that "not all feedback occurs immediately after each sequence in a social interaction. Therefore, the concurrent-delayed dimension is necessary to account for those effects which result from the degree of delay in feedback reactions."[25] Most of the theoretical and experimental literature concerned with the speaker-audience communication situation deals with concurrent feedback. More will be said later about these categories, however, in the discussion of the experimental literature.

The next category of concern is that of free to zero feedback, for in addition to variations in the timing of response, "feedback also differs in the amount or degree of response available at any given time. Free feedback refers to maximum possible reaction, and zero feedback indicates the total absence of overt response to communication."[26] Most of the theoretical and experimental literature concerned with the speaker-audience communication situation is concerned with feedback that falls somewhere between the free and the zero conditions. More will be said later in the discussion of the experimental literature concerning these conditions.

The categories of internal and external feedback have also been called 'inter-' and 'intra-personal' feedback or 'other' and 'self' feedback. DeVito was concerned with the latter when he said "feedback can come from oneself or from the receiver; the former may be designated as self-feedback and the latter was other feedback."[27] Berlo said that intra-personal feedback occurs "when an individual communicates with himself; [and] the messages he encodes are fed back into his system by his decoder."[28] Johnson discussed internal and external feedback very clearly in stating that "internal feedback is at play in the speaker who is being reflective about something he has just said, while external feedback is operating when the speaker is being sensitive to the reactions of other people to what he has said. When external feedback is at work it necessarily affects--and is affected by--the internal feedback that is going on at the same time. So then these two may be distinguished but never disentangled."[29]

Concerning the last two categories, positive and negative feedback, Keltner stated that positive feedback is that which is "likely to be perceived as rewarding (applause, nods of agreement . . .)," and that negative feedback is that which is "likely to be perceived as punishing (inattention, yawns, frowns . . .)."[30] Mortensen, however, stated that

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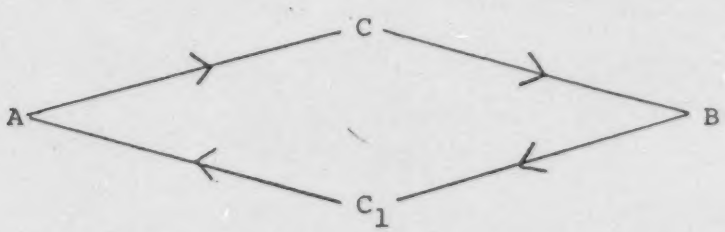
> It first must be distinguished whether feedback has a positive or negative effect on subsequent communication, and this distinction is not to be made in absolute terms. Generally, information that enhances behavior in progress is termed positive, whereas information that inhibits or revises behavior in progress is negative. Note that the definitions are based upon the way in which responses effect change in behavior and not upon judgments which imply 'positive' is necessarily 'good' and 'negative' is invariably 'bad'. They are, in other words, relative to particular types of effects.[31]

Feedback at Work in Communication

After having surveyed the theoretical literature to determine what feedback is, the researcher set forth to investigate further this literature to discover from the communication process what feedback does and how it does it.

Howe defined communication as a "meeting of meaning"; this word 'meaning' implies that "the transmitter and the receiver are sending signals and those signals meet somewhere."[32] Thus, communication may be thought of as a loop as illustrated by the following diagram by Keltner:



"This model shows that: A transmits information C to the individual called B, who responds by returning or reflecting

back what he has received as C, which we will call C_1, and C_1 is perceived by A, the original transmitter."[33] Berlo was the originator of a similar communication model which he referred to as S.M.C.R., or source, message, channel, receiver.[34] Downs, in a partial consideration of Berlo's model, said, "Our study has demonstrated the need for the source to be receiver-oriented, and being receiver-oriented involves adapting to the particular attitudes, knowledge, experiences, and skills of the person with whom one is talking."[35] Certainly, almost any time a source attempts to transmit a message to someone, the source expects and desires that the message be received adequately and properly.[36] Obviously, any individual who receives inadequate information will be unable to alter his performance.[37] So, some propose that the most effective pattern of communication would theoretically be one that involved a system of give and take, in which the participating individuals would be free to reflect and review by means of interrogation, overt interaction, or questioning.

Silverman has illustrated the preceding point by a presentation of two pattern types of communication, from a football coach to his quarterback:[38]

Pattern A:

1. "George, that last play failed badly. Have you any idea as to what may have gone wrong?" (Assume answer from George)

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2. "Well, you may be right, but it may have failed because of the way they shifted their defense. What did their middle linebacker do?" (Assume answer)

3. "Yes, he moved to his left, but he also dropped back. Perhaps the move to the left threw you off. What will you do the next time he drops back like that?" (Assume answer)

4. "I agree, a screen pass would do nicely. . . ."

Pattern B:

1. "George, that last play failed badly because of the way they shifted their defense. Did you notice the shift?" (Assume an answer from George)

2. "You did not seem to see the middle linebacker dropping back. Perhaps his move to the left threw you off." (Assume an answer)

3. "The next time he drops back like that, you ought to use a screen pass. Don't you agree?"

Silverman believes that Pattern A is likely to be more effective in the ideal consideration, because it involves more interactional or interogational exchange of feedback information.

However, in any attempted transmission of a message, there is danger of damage or nullification at either the transmitting end or the receiving end.[39] Yet practically speaking, the feedback principle does not necessarily require any conscious effort on the part of the receiver, but it would probably enhance and strengthen the loop of communication if he did concentrate on the amount and quality of his feeding back response. On the other hand, a speaker

should ideally be acutely sensitive to his audience's "cues," whether conscious or unconscious, and he should be able to interpret them accurately and be able to react to them in ways which would increase the effectiveness of the communication process. "But in every act of adapting to audience feedback, the speaker is in effect allowing the audience to modify certain aspects of his own behavior."[40]

Berlo discussed the idea this way: "In responding to a message, the receiver exerts control over the source. The kind of feedback he provides determines in part the next set of behaviors of the source. . . . [That is,] the audience exerts control over your future messages by the responses it makes. These then are fed back to you. You are dependent upon the audience for feedback."[41] Indeed, much of the skilled speaker's supposed control over his audience resides not so much in his ability to manipulate the audience as in his adroitness at fitting his speeches to ongoing behavioral patterns and tendencies in the audience. "Viewed from this standpoint, the behavior of the audience may have as great an influence upon the speaker as his behavior has upon the audience."[42] Thus, the question arises; does the source influence the receiver or the receiver influence the source? Scheidel observed that the correct--and crucial--answer is that "each is cause and each is effect, each is influening and at the same time being influenced."[43] Since speakers

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influence and are influenced by their audiences, this is a very personal consideration, inasmuch as different speakers react to the feedback of audiences differently. Thus, here another need for a closer look at feedback may be seen--a need to discover similarities in speaker reaction.

One may say that "according to the nature of the theoretical situation, the audience arouses emotions and attitudes in varying degrees and patterns."[44] The complication in the communication system that arises here is due to people's individuality. Certainly, "how a speaker reacts to the audience depends on his particular instinctive equipment . . . [as] If the instinct of aggressiveness is in him more conspicuously developed than is the instinct of submission."[45] Again at this point a clear distinction must be made between the presence of the audience and the response of the audience, because the response is what stimulates or deflates the speaker in his performance. The response may or may not, then, increase the speaker's rate and vigor, and depending upon the response, it may increase rate and vigor at the expense of quality in other respects.[46] The point under consideration here is that the "amount of audience stimulation that brings to one performer an uncommon force and brilliance by arousing his mechanisms of exhibition, will throw another into tremor and dismay through the excitation of fear and the conflict thus introduced."[47]

Speakers also tend to develop immunity to both positive and negative audience response or feedback, thus, of course, destroying the basic essence of the principle involved in true communication. Hollingworth very succinctly discussed feedback when he said that it is "in common with most stimulants, as the reaction to the audience is toned down by adaptation and experience."[48] Along the same lines, McDougull said that "even men long and gradually acquainted with success, suffer a kind of intoxication . . . from the success, and as with drugs they acquire a morbid need and craving for even new and larger doses; they cannot live without the limelight."[49] Here again, each speaker tends toward this area of intoxication in varying degrees and through varying chronological proportions of proclivity.

One should note that it is not the speaker's reaction alone which is a determining variable, for the type of speaking situation is also a very important concern. For example, a ceremonial speech is a very notorious "kind" or "type" of speech. O'Connell has commented that "a ceremonial speech may not have an outward appearance of effectiveness even if it is an excellent speech since many people don't listen."[50]

Notwithstanding, Silverman believes that the primary effect of any speech is upon the speaker because it affects his learning. He says that feedback affects learning in two

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ways. If the speaker speaks on a simple subject or in a relatively simple circumstance, then feedback will improve his performance by increasing his motivation--essentially, putting him in competition with himself. If the speech is difficult and touchy, the feedback tells him exactly what he did wrong and he can assimilate this information for implementation next time.[51] So one might say that the speaker's attitude is a determiner of the audience's reaction.

Keltner has categorized feedback responses from source and receivers into four response systems. He suggested that these systems when used in feedback can increase the possibilities of accuracy in our human speech transmission, and decrease the possibilities of error or loss in our communication interaction.

The first system is known as the system of "observable physical results." This system is working when a father tells his son to mow the grass and returns home later and finds it mowed.[52] The second system is the system of "attempted replication response." This system is present when someone tells another something and he says, "Do you mean . . .?" This system allows errors in perception to be pinpointed quickly.[53] The third system is called the "payoff system." This system is related to the concept of reward and punishment involved in feedback. This system is present when a baby cries, and learns which cry to use to get the

proper feedback he wants.[54] The fourth system is known as the "follow-through system." "This is when an action is taken in response to an idea or suggestion that has been made by a transmitter."[55] This system is present when a housewife says to her husband, "Darling, the grass is getting high," and the husband goes and mows it. Here his follow-through feedback indicates that her communication was successful. All these systems indicate then that feedback requires that the "transmitter be sensitive to the real response of the receiver, and in turn it requires that the receiver be willing to attempt to test what he has received either by performing or by checking with the transmitter as to meaning, intent, purpose, and function."[56]

Ambiguities Within the Feedback Concept

Granting that it is useful to retain the action-reaction concept and the corresponding concept of communication feedback, one should, however, be aware of two possible pitfalls into which this kind of analysis can lead. "The concept of feedback usually is used to reflect a source orientation to communication, rather than a receiver orientation or a process orientation. When we talk about the receiver's responses as feedback for the source, we are observing communication situations from the point of view of the source. We are perceiving through his eyes, not as an external

observer."[57] The feedback concept should not be emphasized as a one-way process at the expense of its inherent two-way quality. Although such studies as the verbal conditioning studies have their place, one should avoid the constantly exclusive reference of "getting feedback" to the source, or "using the receiver's behavior" as feedback for the source.[58]

"The second pitfall in the use of the action-reaction concept is concerned with our continuing reference to communication as a process. The terms 'action' and 'reaction' deny the concept of process. They imply that there is a beginning to communication (the act), a second event in communication (reaction), and various subsequent events with a final end. They imply an interdependence of events within the sequence, but they do not imply the kind of dynamic interdependence that is involved in the communication process."[58] Since people are not thermostats, they have the capacity to use symbols to initiate trial responses to anticipate how others will react to their messages.

Richards put it very simply when he said, "What is interpretation? Inference and guess work."[60] In a more detailed fashion, Clevenger continued these ideas by stating that "listening, like all other human activity, consists of the behavior of individuals."[61] Since listening is a behavior, it is subject to the same rules that govern all other behavior. "Although the point has not been fully proved,

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it is a good working hypothesis that whatever people do in any situation (including the listening situation) will be consistent with what they have learned to do both in that situation and in other situations that they think to be relevant to it."[62] It seems reasonable to assume that an individual remains primarily the same in the role of an auditor as he is in any other role, with his or her particular habits, values, beliefs, and motives which serve as a reference for his behavior in general. That is, "how an individual responds on a given occasion is a product of the stimuli of the moment as interpreted in the light of his life history."[63] So, more than entering the listening situation with an imaginary sort of universal listening faculty, the auditor attempts to deal with his situation at the moment as a respective individual with his unique background experiences as his base of behaving. As individuals differ, so do contexts or situations. For example, "an isolated stimulus occurring in one context may elicit from him [the listener] a very different response from that elicited by the same stimulus occurring in a different context."[64] Each individual in a group behaves as he does because of his prior experiences coupled with the stimuli operating upon him at the moment, including the context as he perceives it. Experiences, contexts, and stimuli control behavior, . . . they are almost infinitely variable."[65]

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Finally, along these same lines, Fotheringham concluded:

> The notion that feedback is readily available . . . ignores the evidence of experience in trying to obtain and interpret feedback. As receivers, we frequently mask or distort our reactions to messages. . . . This fact is confirmed in many ways. . . . Masked and distorted feedback is confirmed by the history and development of attitude and personality testing. Early tests in these fields reflected the naive assumption that if people were asked about themselves, their reactions and beliefs, they would reply unambiguously. . . . Furthermore, each society develops a set of conventional reactions for audiences. In some situations we applaud the speaker, we sit quietly and look interested, or we say 'Amen!' These are expected receiver responses which have become conventionalized; . . . the masking tendencies of receivers limit the value of direct observation in dealing with feedback.[66]

Although these preceding comments have been rather brief, they should provide a relatively adequate synthesis of the theoretical basis of the feedback concept.

Review of the Experimental Literature

After having examined the theoretical literature, the investigator began to review the complementary experimental literature. As an introduction to the experimental background, a brief examination of the very beginnings of the feedback concept may be advisable.

The construct of feedback in communication has grown out of the science of cybernetics. Cybernetics is a term which was coined by Wiener of Massachusetts Institute of Technology.[67] The science of cybernetics may be reviewed

as "the science of control and communication in the animal and machine."[68] Wiener coined the term 'cybernetics' to describe the operation of machines that employ a feedback principle.[69] These machines are called servomechanisms. "Servomechanisms are machines which are intrinsically purposeful or goal-seeking. These machines are sensitive to certain stimuli and respond to them . . . [by] reporting back to it [the mechanism] how far it is deviating from its goal. This type of error correcting information is called feedback."[70] So then feedback is a basic characteristic of the cybernetic mechanism as it "designates the feeding back of information to the machine during a process which enables the machine to adjust itself to changing conditions."[71] The term 'cybernetic', then, dramatizes the fact that a speaker is, or should be, a feedback mechanism.[72]

A still deeper search revealed that the term feedback was originally borrowed from radio engineering and computer technology.[73] More recently, it has come to be applied to the operation of such things as thermostats.[74] When the temperature of a building controlled by a thermostat reaches the given temperature previously set on the thermostat, the thermostat shuts off in response to the temperature. The thermostat is sensitive to the feedback, which in this case is the temperature, enabling it to respond by shutting off

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and maintaining its present temperature or previously set goal. Similarly, the body also has self-controlled temperature regulation in the form of sweat glands. Certainly in both cases, the regulating mechanisms maintain a desired range of temperature by receiving messages and then making adjustments to maintain this desired temperature.

The initial interest in feedback relative to speech communication was focused on the relationship of feedback channels to accuracy in communication. Leavitt and Mueller composed one of the earliest teams to study feedback experimentally. Their 1951 experiment studied the effects of feedback on accuracy in communication for drawing geometric patterns.[75] In their study, several instructors told groups of students how to draw a set of geometric patterns under "zero feedback," "visible audience," "yes-no," and "free feedback" conditions. They found that accuracy was highest under the free feedback condition: partial feedback was more accurate than no feedback, and as feedback increased, both senders and receivers increased in confidence concerning their performance. Zero feedback appeared to be the least accurate but the fastest method. Similarly, in 1973, Adams studied the effect of various channels of feedback on the communication of information.[76] In this study, subjects were randomly paired, one as a speaker and one as a listener, and placed in one of four feedback conditions: "zero

feedback," "visual feedback," "audio feedback," and "free feedback." Instructions were given by one subject to the other for a grid drawing. The results indicated that with no feedback or even with visual feedback alone, communication of a difficult nature would not improve over time, and that visual feedback by itself tends to slow the communication without substantially improving it.

In a somewhat similar vein, Rivera investigated the effects of feedback types and certainty of correctness of response.[77] This study sought to further the theoretical distinction between the terms 'information feedback', 'knowledge of results', and 'reinforcement' by providing experimental evidence of the differential effects of information feedback and knowledge of results on a paired associate learning task. The results indicated that subjects' performance improved at the fastest rate when information feedback was provided. Along the same lines but in a less theoretical study, Yorke examined the effects of feedback in programmed instruction.[78] He discovered that increasing feedback caused a reduction of errors on the posttests of the programmed instruction.

There have also been investigations into feedback and its effect on group behavior. Concerning group behavior, the study by Dunne on feedback, persuasion, and attitude change was a study of the process of interpersonal

communication in the dyad.[79] This study experimentally explored the effects of attitude discrepant oral persuasive messages on the feedback responses, and attitudes of receivers in a dyad. The results indicated that verbal behavior was a more facilitative indicator of feedback response than was nonverbal behavior. Furthermore, results indicated that receivers exposed to attitude congruent messages responded with more positive and less negative feedback, while those exposed to attitude discrepant messages responded with more negative and less positive feedback, and the neutrals behaved differently than either of the other two groups. In a consideration of the classroom group, Walter conducted a study concerned with a feedback intervention strategy which was developed and focused on the acceleration of positive (task) behaviors of small and large classroom groups.[80] The results indicated that feedback may be manipulated both to increase the rate of student task responses and to decrease the rate of inappropriate behavior. Finally, in relation to groups, Brown's 1971 study on the examination of the impact of a feedback interventional system was concerned with social systems at three levels: individuals, groups, and organizations. The results indicated that of the three levels, the organization profited most from the introduction and utilization of feedback.[81]

Another rather interesting but somewhat frustrating area of investigation relates to those studies concerned with the ability of observers and/or speakers to interpret audience feedback correctly. Studies by Faules[82] and Grikscheit[83] seem to be the representative norm, as they failed to find significance but felt there was a tendency present. To the knowledge of this investigator, only two studies have shown significance: Dickens and Krueger,[84] and Ayers.[85] In a somewhat similar way, Kritsinger was concerned with measuring feedback by gross bodily movement to determine audience interest.[86] He was successful in relating the two.

Other investigators have been concerned with intra-audience feedback, such as Hylton[87] and Ayers, Ayers, and Smith.[88] Ayers found no significant influence on comprehension between audience members. Hylton in 1968 did conclude that positive feedback may be a stronger intra-audience stimulus than is negative feedback.[89]

Also, only peripherally related to this study are the experiments in delayed feedback which should at least be mentioned. Ham, for instance, conducted a relatively representative delayed feedback study in 1957 in which he concluded that stuttering groups, when compared among themselves and to normal speakers, exhibit certain statistically significant differences in measured voice variables during

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alteration of auditory feedback and normal sidetones, and that they cannot be differentiated consistently over a range of alteration conditions or voice variables.[90] Fairbanks and Guttman,[91] Hamlyn,[92] and Hirachfield[93] conducted similar experiments.

Although rather indirectly related, the studies in verbal conditioning and those concerned with social reward should be mentioned because of their influence on research. Barnlund in 1968 observed:

> The basic design of studies of communicative conditioning have been derived from the conceptual and experimental work of Pavlov and Skinner . . . [who as] experimenters provide a setting and a task that will elicit responses . . . [then] during an initial period of operant observation, normal patterns of speech are recorded . . . [and] in the period of reinforcement that follows, a particular response class (such as derogatory statements) is reinforced through approving or disapproving signals from the listener, and changes in the normal rate are noted. During the extinction period, reinforcement is withdrawn and the profile or output is again calculated to find if it returns to normal.[94]

Greenspoon,[95] in an early experiment in 1955, was one of the first to demonstrate that Skinner's Law of Reinforcement was capable of experimental application in the area of verbal conditioning. Krasner (1958),[96] and Salinger (1959)[97] conducted important experiments in this area by the implementation of subtle verbal and nonverbal cues.

Verbal conditioning is an important area of investigation, but another area of importance that has been developed

in the area of feedback research in psychology and social psychology is the area of esteem. Homans in 1964 noted that "one type of reward to which people are extremely responsive is social approval or esteem."[98] There are several social psychologists who have postulated that this esteem will be reciprocated if positive and negative feedback become a crucial factor in the construction of a relationship. Thus, cognitive consistency theorists such as Newcomb in 1956[99] and 1961,[100] and Heider in 1958[101] have suggested that the need for consistency is the basis of reciprocity. These studies, then, stress the importance of self-esteem or one's self-image. Roberts put it in this way: "It appears that there is an interaction between success in various speaking situations and self-image; as one's self-esteem goes down, his ability to communicate effectively goes down and each time he fails in a communication situation his low self-esteem is further reinforced."[102] An individual's self-esteem can play an important part in his evaluation of his performance in a given situation and in the way in which he behaves in his interaction with others. In other words, "the speaking situation may have reflexive effects upon the individual's personality, but equally important, the personality of the individual may predetermine the value placed on the speaking situation."[103]

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Finally, the largest number of experiments on feedback in the area of communication seem to have been done in the area of the effects of feedback on the speakers. In recent years an area of research which has caught the attention of researchers is related to the speaker's ability to identify feedback. Jensen discovered that relatively untrained speakers not only can but do observe specific audience behaviors when not instructed to do so. He further observed that these speakers are, or at least think they are, able to distinguish listeners' attentiveness with agreement from attentiveness with disagreement.[104] Gardiner, in 1969, discovered that speakers who perceived positive audience feedback rated the audience and their own performance significantly higher than did those speakers who perceived negative audience feedback.[105] Amato and Ostermener[106] found similar results, while Combs and Miller[107] found conflicting results.

In the area of positive and negative feedback, both verbal and nonverbal cues have been used. Vlandis used the verbal cues "good" as positive feedback, and "no" as negative feedback, with a "no comment" condition represented by silence.[108] Blubaugh, on the other hand, used nonverbal cues. For the positive condition he used eye contact, smiles, positive head nods, a comfortable but erect posture, notetaking, and little or no movement of body or limbs.

For the negative feedback condition he used no eye contact, a slouched posture, playing with objects, manipulating, examining, or touching parts of the body, looking around the room, frequently shifting body position, and doodling.[109] Mattox[110] and Barwind[111] also conducted studies similar to this.

Lastly, of the investigations of the effects of feedback upon the speaker, probably the largest number of studies have been focused on the fluency areas of delivery. The results seem to indicate clearly that positive feedback causes speakers to continue on points under consideration, while with negative feedback, nonfluencies occur and the speakers continue on to discuss new information. Representative studies in this rather well-researched area are those such as Stolz and Tannenbaum,[112] Nininger,[113] Sereno,[114] Davis,[115] Karns,[116] McCauliff,[117] Finkle,[118] and Scherz.[119]

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